ITEM 670.53010011 – LUMINAIRE, 250 WATT PULSE START METAL HALIDE TEARDROP (NYC)

DESCRIPTION

This work shall consist of furnishing and installing pulse start metal halide teardrop luminaires – 250 watts, as shown on the plans or as directed by the Engineer.

MATERIALS

A. The luminaire shall be approximately 33" overall height with a maximum, circular cross section, approximately 15 ¾" diameter at its widest part, designed for use with a vertically mounted, base up, 250 watt pulse start metal halide lamp, providing an IES (Illuminating Engineering Society) Type III, light distribution. The luminaire shall be UL listed for wet locations, operate at the voltage as indicated on the Contract Drawings, and shall be as specified herein and as manufactured by:

Sentry Electric Corp.	Holophane	Magniflood Inc.
185 Buffalo Avenue	114 Jericho Tpke. Suite 112	7200 New Horizons Blvd.
Freeport, NY, 11520	Floral Park, NY 11001	N. Amityville, NY 11701
(516) 379-4660	(516) 775-2720	(631)226-1000

Spring City Electrical Manufacturing Co.
Hall and Main Streets
Spring City, PA 19475
(610) 948-4000

Or approved equal.

B. The luminaire shall consist of housing with a top mounting assembly containing the electrical components and an optical system with refractor and reflector as shown on applicable NYCDOT Division of Street Lighting standard drawings.

C. The ballast housing shall be cast aluminum and contain tray-mounted ballast with all starting components and terminal blocks securely attached. All live parts in the ballast housing shall be insulated. The top of the ballast housing shall have a hex shaped, threaded hub for attaching the luminaire to either 2" NPT threaded nipple on the mast arm or bracket. A removable, cast aluminum door, safely attached to the ballast housing by stainless steel screws and/or a safety cable shall be provided for the removal of the ballast and interior parts.

D. The reflector and lamp housing shall be of spun aluminum having a thickness not less than 1/16", and shall contain the lamp reflector, the lamp socket, and the lamp. The top edge of the spun aluminum housing shall be sturdily secured to the cast aluminum ballast housing and the bottom edge to a cast aluminum globe holder. Connections to each casting shall be with at least five 3/16" diameter, universal head, aluminum rivets designed for use on soft materials, evenly spaced around the housing edges.

E. The refractive globe shall be of shock and thermal resistant borosilicate glass with a high transmission factor and formed with a system of light controlling prisms to provide an IES

Type III light distribution. The globe surface and housing hinge ring shall have at least one mark each to indicate either house side or street side light distribution to allow adjustment of the globe for a proper light distribution at the final place of luminaire installation. The globe shall be tightly held against the cast aluminum globe holder by means of at least 4 cast aluminum hold-down clips, stainless steel screws and a stainless steel set screw such that the globe cannot be moved in its holder when closed. The refractor assembly shall be hinged to the hinge ring of the housing and have a means of latching the refractor assembly to the housing.

Hinging arrangement shall allow for easy removal of the refractor assembly and prevent accidental disengagement of the refractor assembly. Latching arrangement shall be such as to prevent relative motion between latch components and accidental opening of the refractor assembly.

A heat, moisture and compressive-set resistant gasket shall be furnished for the globe holder to provide a firm seat and tight seal of the globe when closed.

F. The lamp socket shall be a porcelain mogul socket, 4 KV pulse rated, suitable for use with a 250 watt pulse start metal halide lamp, ANSI Code M138. The socket shall have a spring type center contact and sufficient gripping action to prevent backing out of the lamp. The socket shall be adequately supported to the luminaire housing by a means, which serves as a wireway for the socket leads. The socket support shall position the lamp in relation to the refractive globe to produce correct lighting distribution.

G. The ballast shall be of the constant wattage, auto-transformer type or equal, suitable for the wattage and operating voltage of the luminaire as indicated on the Contract Drawings. The ballast shall be equipped with a polarized quick disconnect plug for the connection of its secondary leads to the lamp socket leads. The ballast shall be capable of starting and operating the lamp at a temperature of minus 20 degrees Fahrenheit.

H. A 250 watt pulse start metal halide lamp shall be provided with each luminaire as indicated on the Contract Drawings. The entire luminaire shall be completely pre-wired, requiring only the connection of the primary leads to the incoming feeders.

I. An identification number “NYC- (year) - 2PM”, and an inscription “Property of New York City” shall be placed on the inside of the luminaire with ½” high letters.

J. The inside surfaces of the luminaire housing shall be painted with black polyester acrylic powder coating and outside surfaces with Federal Color 14056 Green Gloss or color as specified on the Contract Drawings.

K. Total downward light efficiency shall not be less than 70% with the lamp lumens being directed downward in a controlled Type III light distribution.

L. Any material or method of installation may be substituted for a material or method of installation specified herein provided that the substitute material or method of installation is equal to or better than the material or method of installation specified herein subject to approval.

M. All equipment and installation methods shall be as specified herein or equal approved by the Engineer and the New York City Department of Transportation, Division of Street Lighting.

CONSTRUCTION DETAILS

The Contractor shall include but not be limited to, the following work to install the luminaires:

A. Shop Assembly

1. Temporarily shop-assemble the luminaire to the lamppost mast arm or structure-mounted bracket. After the luminaire is hand-tightened, wrench-tighten a minimum of three turns, but no more than four turns such that the side of the hub is perpendicular to the axis of the mast arm. The connecting pipe nipple shall thread into the luminaire hub at least ¾".

2. Drill a 5/16" through-hole with axis parallel to and on the same plane with the mast arm or bracket horizontal axis, through the luminaire hub and the engaged nipple. A ¼" stainless steel hex head cap screw will be inserted through the drilled hole for use as the through-bolt to secure the luminaire to the nipple.

3. Clean the reflector and the inside surface of the globe as recommended by the manufacturer. Install a 250 watt pulse start metal halide lamp. Adjust the globe such that the line between the house side marks on the globe surface is perpendicular to the horizontal axis of the mast arm or bracket with the street side part of the globe facing the roadway for roadway lighting or facing the sidewalk for sidewalk lighting. Securely tighten the globe to its holder.

4. Remove the luminaire from the lamppost mast arm or the structure-mounted bracket and clean up any damaged threads on the nipple for field installation of the luminaire. Match-mark all mating pieces for field installation.

B. Field Installation

1. Carefully select the luminaire as match-marked in the shop for installation on the correct lamppost. Tighten the luminaire to the nipple of the lamppost arm with proper thread engagement until the drilled through holes on the hub and nipple are aligned. The installation of the through-bolt requires proper thread engagement to the nipple.

2. Furnish and install a ¼" hex head cap screw with double nuts through the hub and nipple, and attach the safety cable provided on the lamppost mast arm to the luminaire, as indicated on the contract drawings. The screw and nuts shall be type 316 stainless steel.

3. Make proper wire connections to the luminaire, and securely fasten the ballast-housing door. Gently clean the outside surface of the globe.

C. The Contractor shall submit to the Engineer for review by the New York City Department of Transportation, Division of Street Lighting certified photometric test data from an independent testing laboratory, giving the following information:

- Isofootcandle lines of horizontal illumination based on a 25' mounting height with correction factors 15', 20' and 30' mounting heights on coordinates of transverse distance versus longitudinal distance in units of mounting heights.

- Coefficient of utilization curve.

- Maximum plane and maximum cone plots of Candela.

- House side and street side candela tabulation in polar coordinates with vertical angle versus lateral angle.

D. The Contractor shall submit to the Engineer for review and approval by New York City Department of Transportation, Division of Street Lighting all shop drawings pertaining to the construction and installation of luminaires for approval.

METHOD OF MEASUREMENT

This work will be measured as the actual number of pulse start metal halide teardrop luminaires – 250 watts, satisfactorily furnished and installed.

BASIS OF PAYMENT

The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work.